

# Economics of Energy.



Principal Voices.

## How would you characterize the outlook for world energy?

I believe we are in the sunset of the great energy regime of coal, oil, natural gas and uranium. Burning fossil fuels has created too much carbon dioxide in the atmosphere and the planet is getting hotter. A 3.5 degree Celsius rise this century will take us back to the temperature on earth three million years ago, and could lead to the extinction of 40 to 70% of all species. What we need now is a new economic narrative—an economic game plan that is powerful enough to address climate change and peak oil.

## You say that we are on the cusp of a 'Third Industrial Revolution'. Talk us through that.

We are now beginning to see a distributed communication revolution—Internet, satellite and wireless communication—converge with a new distributed energy revolution that could open the door to a new fuel era.

There are four pillars of the 'Third Industrial Revolution'. Pillar one is renewable energies. The key is how you collect them. This is where pillar two comes in—buildings as power plants.

Imagine millions of buildings, office parks, factories and homes as power plants 25 years from now. They will load local renewable energy from the sun, wind, waves, geothermal and waste. Bouygues

Construction in France and Acciona in Spain are constructing the first such buildings in Europe.

But how do you store the renewable energy? The answer is hydrogen—the third pillar. When you use hydrogen for power, the only by-products are water and heat. There is no pollution.

The fourth pillar uses the same technology we created in Silicon Valley for the Internet revolution. We're going to make the power grid of the world smart and intelligent like the Internet. We call it the intergrid—millions of us loading power into our buildings, storing it

with hydrogen and then distributing it to each other across smart intergrids. The first intergrids are going up in the United States this year in Texas, Colorado and southern California.

## Can renewable energy provide enough power to run a national or the global economy?

Yes. With the intergrid, millions of local producers of renewable energy—with access to intelligent utility networks—can potentially produce and share far more distributed power than the older, centralized forms of energy.

We begin to think of energy like information. Each of us can create our own energy, store it, and then distribute it to each other.



It's going to cost money, but there's also money to be made, if we rethink buildings as power plants which can send out more power than

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they need. That's going to be a huge multiplier effect for industry. We are going to create millions of jobs because we have

to rebuild the infrastructure. Virtually every industry is going to be remade.

## Are you confident that we will succeed in combating climate change?

I think we have the science and technology to do it. But science and technology and all of the economic planning will mean nothing unless there's a change in will. We have to move from geopolitics to biosphere politics and understand that we live on one common planet. We are all interdependent. We have to think as homo sapiens for the first time in history.

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